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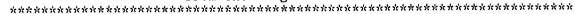                *Online Systems; Program Implementation;
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ABSTRACT
                This report describes 2-year outcomes of the Iowa
Distance Education Alliance (IDEA), a partnership involving
educational institutions across Iowa that received funding from the
federal Star Schools Program to demonstrate the use of the Iowa
Communication Network's (ICN's) fiber-optic technology for K-12
instruction. First-year project activities focused on teacher
training and public relations. When the fiber-optic network was "lit"
during the second year, the focus changed to using the network to
deliver programming for K-12 students and teachers. Data were
obtained from surveys of regional partnerships and coordinators, Iowa
citizens, students, teachers, department chairs of
teacher-preparation programs, workshop participants, and members of
the Teacher Education Alliance. Database user logs were also
analyzed. The data show that the project has been extremely
successful. All of the objectives outlined in the proposal were
accomplished. Cooperation and collaboration among educational
organizations improved and innovative instructional activities were
initiated. Students and teachers who use the system view it
positively, as do other Iowans who have seen the system in operation.
However, implementation occurred at a slower pace than anticipated.
Continued success may hinge on future developments in the following
key areas: access to the system, policy issues, operational issues,
teacher inservice, preservice teacher education, information access
and coordination, and collaboration. (LMI)

**IOWA**

**DISTANCE**

**EDUCATION**

**ALLIANCE**

IDEA

# FINAL EVALUATION REPORT

## ABBREVIATED VERSION

Prepared by
Chris Sorensen
Jan Sweeney

RESEARCH INSTITUTE FOR STUDIES IN EDUCATION
E005 LAGOMARCINO HALL • COLLEGE OF EDUCATION
IOWA STATE UNIVERSITY • AMES, IOWA 50011
(515) 294-7009

December 1994

# Iowa Distance Education Alliance

# Final Evaluation Report

*(Abbreviated Version)*

Prepared by
Chris Sorensen
Jan Sweeney

with assistance from
David Putz
Dawn Ruchensky

*Research Institute for Studies in Education*
*E005 Lagomarcino Hall*
*College of Education*
*Iowa State University*
*Ames, Iowa 50011*
*(515) 294-7009*

December, 1994

DEMONSTRATING THE IOWA COMMUNICATIONS NETWORK (ICN)

EXECUTIVE SUMMARY

FROM THE IOWA DISTANCE EDUCATION ALLIANCE (IDEA) EVALUATION

(Iowa's Star Schools Project)

The Iowa Distance Education Alliance (IDEA) is a partnership involving educational institutions across Iowa that received funding from the federal Star Schools Program to demonstrate the use of the Iowa Communication Network's (ICN) fiber optic technology for K-12 instruction. Iowa Public Television (IPTV), the Iowa Department of Education, the state's three public universities, fifteen community colleges, fifteen area education agencies (AEAs), and many local school districts participated in the project over a two-year period. The project focused on accomplishing six major goals: (1) coordinating use of the ICN, (2) informing Iowans about the ICN, (3) preparing teachers to use the ICN, (4) connecting schools to the ICN, (5) improving instruction in five content areas through use of the ICN, and (6) documenting the effectiveness of the ICN. During the first year of the project, activities focused on teacher training and public relations efforts as the state prepared for the fiber optic network to become operational. The fiber optic network was "lit" during the second year of the project and the project's emphasis then shifted to using the network to deliver programming for K-12 students and teachers, although training and public relations efforts continued.

## Key Findings

Iowa's Star Schools demonstration project has been extremely successful. All of the objectives and activities outlined in the IDEA proposal were accomplished during the two years of the project, and the momentum begun with the project is continuing. Cooperation and collaboration among educational organizations in Iowa improved. Innovative instructional activities are occurring over the ICN. Students and teachers who used the system view it positively, as do other Iowans who have seen the system in operation. Some of the highlights of the project include:

### Public Perceptions
- Over 75,000 Iowans have heard presentations and received information about the ICN.
- Approximately 15,000 Iowans have seen the fiber-optic classrooms in demonstrations.
- Among Iowans who have seen the system in operation, over three-fourths (76%) believe interactive distance education will benefit K-12 education in Iowa.
- 81% of Iowans believe the ICN is important in providing students with access to resources such as computer databases and experts.
- 79% believe use of the ICN will improve Iowa students' abilities to succeed in a technological world.
- 65% believe all teachers should receive training on how to teach at a distance.

### K-12 Student Perceptions
- 7,140 K-12 students participated in instructional courses and events over the ICN.
- Over 800 elementary students participated in a storyteller series over the ICN.
- Among K-12 students who have taken an ICN course, 83% were satisfied.
- 80% of students who have taken an ICN course would take another one and 75% would tell their friends to take one.

## K-12 Teacher Training
- 2,866 K-12 teachers participated in inservice courses and activities offered over the ICN.
- 555 K-12 teachers participated in institutes on curriculum reform in mathematics, science, literacy, foreign language, and vocational education sponsored by the IDEA and rated these institutes positively.
- Approximately 900 Iowa educators participated in hands-on workshops to learn how to use the ICN and nearly 90% rated the workshops as excellent.

## K-12 Teacher Perceptions
- K-12 teachers want their schools to be connected to the ICN; 96% of teachers participating in IDEA activities reported that having an ICN classroom in their building is important.
- Among teachers participating in IDEA training, 21% have now used the ICN for instructional purposes.
- 100% of K-12 teachers surveyed who have used the system felt distance education is an effective way to learn.
- 100% of K-12 teachers who used the ICN found the equipment easy to manage while teaching.
- Most teachers (75%) found that remote site students learned as much as students in the classroom with the teacher.
- 88% would encourage their colleagues to teach over the ICN.

## K-12 Internet Use
- 1,126 K-12 teachers received training in how to use the Internet.
- The IOWA Database, an electronic clearinghouse on the Internet developed as part of the Iowa Star Schools project, is being used by Iowa educators.

## Teacher Education
- 82% of the private colleges in Iowa believe distance education is important to include in preservice teacher education.
- Most of the private colleges (82%) were connected or plan to connect to the ICN.

## Conclusions

As with any innovation, acceptance of the system as an integral part of K-12 education will take time. Implementation of the IDEA project occurred at a slower pace than originally anticipated, and although much effort was expended in the area of public relations, efforts to keep Iowans informed and to help educators realize the potential of the ICN remain an area for emphasis. Use of the ICN will continue to evolve, and as evidenced by the IDEA evaluation findings, continued success may hinge on future developments in several key areas.

### Access to the system
The Iowa Star Schools demonstration project has been so successful that levels of demand for ICN time have increased rapidly, often exceeding capacity. Demands for access to the system, both in terms of physical connections (sites) as well as availability and access to current ICN classrooms has surpassed all expectations. The level of demand has created scheduling difficulties not previously anticipated.
- Action by state government is needed to continue to expand the network. IPTV and the regional schedulers at community colleges will need to continue to provide leadership for the evolving scheduling process.

### Policy Issues
Critical concerns for K-12 teachers include additional planning and released time for distance education instructional activities and additional compensation for teaching courses over the ICN.

- District and/or regional and/or state policies need to be determined for teaching over the ICN. The IDEA partners have recommended that the Iowa Department of Education take a leadership role in initiating discussion of these issues.

## Operational Issues

K-12 operational issues include coordination of common calendars and class schedules across school districts, the role of the facilitator in the remote classroom, and local costs for maintaining ICN facilities.

- Districts and/or regional and/or state policies and procedures need to be determined to enhance operation of the ICN. Appropriate educational groups to be involved in the discussion of these issues include the Iowa Department of Education, community colleges, AEAs, and local school districts.

## Teacher Inservice

Teacher inservice was an integral component of the IDEA project and contributed significantly to its success. The workshops to train teachers to use ICN equipment were extremely effective. The institutes held to inform teachers about current reform efforts in key curricular areas were received favorably. Institute participation increased during the second year of the project and participants appreciated the convenience of inservice training provided over the ICN. Significant interest in the Internet training was also evident.

- Hands-on training for teachers in the use of the ICN and the Internet should be continued in a systematic and coordinated fashion, and equitable and inexpensive Internet access for all K-12 schools should remain a goal. The ICN should also continue to be used as a vehicle for providing teachers with opportunities to upgrade their knowledge and skills in content areas. The IDEA partners recommend that the universities and AEAs take a leadership role in the area of inservice.

## Preservice Teacher Education

Information was provided and efforts were made to integrate distance education into the preservice teacher education programs across the state beyond the awareness level. There is a need for increased faculty involvement and training and increased access to ICN facilities.

- Opportunities for learning about distance education should continue to be provided for teacher education faculty and administrators. The Iowa Association of Colleges of Teacher Education (IACTE) appears to be a viable forum for initiating discussion of the role of distance education in teacher education.

## Information Access and Coordination

Educators across the state are more aware of the ICN and the capabilities of distance education, but many perceive a need for more information, perhaps centralized, about the system and about activities that are available on the system.

- Information access and coordination should build upon current efforts by the Communication and Resources Clearinghouse, community colleges, AEAs, and other IDEA partners and alternative methods of providing information should be explored. IDEA partners recommend that the Clearinghouse take a leadership role in providing information to educators and students.

## Collaboration

Collaboration and coordination among educational organizations contributed to the success of the IDEA project. Continued collaboration and cooperation will be necessary if the system is to be used to its fullest potential. There is general agreement among the project partners that the IDEA should continue and general agreement as to the roles of the partner groups.

- The IDEA partners recommend that IPTV take the responsibility for continuing the partnership and for initiating further discussions of the roles and responsibilities of the participating educational organizations.

# Iowa Distance Education Alliance Final Evaluation Report
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### (Abbreviated Version)

# Iowa Distance Education Alliance Final Evaluation Report

As the Iowa Distance Education Alliance (IDEA) concludes a    vnies conducted through the Star Schools project, it is time to reflect on the accomplishments anc .idings documented through the evaluation process. During the first year of the project, activities focused on teacher training and public relations efforts as the state prepared for the fiber optic network to become operational. The fiber optic network was "lit" during the second year of the project and the project's emphasis then shifted to using the network to deliver programming for K-12 students and teachers, although training and public relations efforts continued. This report is divided into five major sections. The first summarizes activities and evaluation findings related to the Regional Partnerships, Iowa's community colleges and area education agencies working in collaboration with local school districts in each of the state's 15 regions. The second summarizes the activities and evaluation findings related to the Teacher Education Alliance, which consists of the three state universities. The third summarizes the activities and evaluation results related to the Communication and Resources Clearinghouse, which promotes communication between and among the Iowa Distance Education Alliance partners. The fourth summarizes the two-year accomplishments of the IDEA by the six project goals. The fifth section presents conclusions and recommendations resulting from the evaluation activities.

## REGIONAL PARTNERSHIPS

### Summary of Regional Coordinator Reports

As part of Iowa's Star Schools project, community colleges and Area Education Agencies (AEAs) in each of Iowa's fifteen regions have been working together to connect schools to the Iowa Communications Network (ICN), inform Iowans about distance education, coordinate K-12 activities on the ICN, and collaborate with the Teacher Education Alliance to provide teacher training in distance education and in curriculum reform. This working relationship between the community colleges and the AEAs is called a Regional Partnership. Each Regional Partnership has a regional coordinator responsible for assuring that regional activities are accomplished. During the project, regional coordinators were asked periodically to report on specific activities identified in Iowa's Star Schools proposal. The information below summarizes the data collected for the duration of the project (October 1, 1992 to September 30, 1994) and was compiled from information submitted by the regional coordinators in quarterly reports to the evaluation team. The data do not reflect all activities of the regions, as one of the regions did not submit a final report.

#### Public Relations
- Over 75,000 Iowans in 3,180 groups around the state, including groups of teachers, students, school administrators, parents, school boards, and ABE/GED coordinators as well as civic groups and open house groups at local schools, received presentations and information about distance education and the ICN.
- 14,994 Iowans attended 930 demonstrations of the ICN across the state and were given the opportunity to see Iowa's fiber-optic classrooms in operation. One hundred sites across the state were used for demonstrations.
- Regional coordinators held 74 meetings, more than half of them (39) over the ICN, with designated groups in the regions to discuss the direction and progress of the project. Community colleges, AEAs, public and private K-12 schools, private colleges and universities, and local businesses sent representatives to these meetings.

## K-12 Instruction and Student Support
- 48 K-12 courses serving 868 Iowa students were taught over the ICN, including courses in science, mathematics, foreign language, literacy, vocational education, and other disciplines.
- 241 instructional events reaching 6,272 Iowa students were held on the ICN which allowed K-12 students to talk to experts, conduct experiments, interview legislators, connect to pen pals, participate in storytelling for elementary students, and more.
- Five K-12 student telecommunications clubs were planned with 53 students participating.
- Five after-school hotlines were planned to serve K-12 students in the five curriculum areas identified by the Star Schools project (mathematics, science, foreign language, literacy, and vocational education).
- Two student tutoring projects were set up over the ICN.
- 19 special programs reached 506 students from underserved groups, including Chapter 1, special education, and minority students, females in mathematics and science, and non-native English speakers.

## K-12 Teacher Training and Support
- 22 complete inservice courses to 492 K-12 teachers were provided over the ICN.
- 142 inservice activities reaching 2,374 teachers were conducted over the ICN. These inservice courses and activities were in addition to the inservice workshops provided by the Teacher Education Alliance.
- 916 Iowa teachers received release time to participate in distance education activities.
- 1,921 teachers received funding for attendance at inservice workshops and institutes related to distance education and curriculum reform.
- 75 Internet training sessions were held across the state with 1,126 teachers participating.
- Ten mentoring or peer sharing programs were established with 464 teachers participating.
- Ten technical hotlines began operation to assist teachers with technical difficulties they may encounter when teaching over the ICN

## Other Use of the ICN by Educational Groups
- 4,663 participants attended meetings and other activities held on the ICN. Groups using the ICN for meetings and events included school boards, principals, teachers, K-12 students, GED students and instructors, and civic groups.
- 6,763 community college students took courses over the ICN.

## Year One Regional Partnership Survey

At the conclusion of the first year of the project, regional coordinators and regional partners (AEAs and community colleges) were surveyed to evaluate the effectiveness of the project. Those surveyed were asked to indicate the most positive impacts of the project in their region, describe existing difficulties or barriers, and predict the greatest challenges to success in the second year of the project.

## Positive Impacts in the Regions
The impacts mentioned most frequently by all three groups of respondents (regional coordinators, AEA personnel, and community college personnel) included:
- The training of K-12 teachers to use distance technology.
- The growth of enthusiasm among K-12 teachers towards distance education.
- Increased cooperation and improved relationships among educational organizations, particularly community colleges and AEAs.
- A public better informed about distance education.

## Difficulties and Barriers in the Regions
All three groups were consistent in their perceptions of the primary difficulties and barriers faced in the region during implementation of the project. These included:   .
- Frustration with the **slowness of the process**, including the time for connections to be made to the ICN as well as the time taken for the project to become operational.
- A perceived **lack of information** at the local level.
- The **demand for more classrooms** by local schools and the perceptions of inequity in site selection.

## Challenges for Year Two
Several challenges to implementation of the project during the second year were also identified by respondents. These included:
- Dealing with information demands related to **Phase III** of the state's plan to connect schools to the ICN.
- Scheduling difficulties among schools due to **lack of consistency in school calendars** and class schedules.
- **ICN scheduling difficulties** due to the cumbersome process and to the improper functioning of scheduling software.
- A need for improved **communication from the state** to the local level.
- Ensuring that **quality offerings** are provided over the ICN.
- **Assessment of local needs**.
- **More funding** to local schools.

## Regional Preparedness
Respondents were also asked to rate the preparedness of their region to implement Year Two of the project on a six point scale (1=strongly unprepared; 2=moderately unprepared; 3=slightly unprepared; 4=slightly prepared; 5=moderately prepared; 6=strongly prepared).
- The four **community college** respondents appeared to feel that their regions were **moderately to strongly prepared to implement the project** (two ratings of five and two of six) and had an average rating of 5.5.
- **Regional coordinators** felt **moderately prepared** to meet the challenges of implementation. The average rating for the fifteen coordinators was 5.2 with all but one coordinator giving their region a five or six.
- **AEA respondents felt the least prepared** with an average rating of 4.5, although seven of the twelve respondents provided a rating of five or six.

### Year Two Regional Coordinator Surveys

In addition to the quantitative data collected through quarterly reports from the regions, the regional coordinators were asked to respond to several open-ended questions during the second year of the project. This information was collected in order to provide a richer description of what was occurring in the regions. In January, 1994, regional coordinators were asked to describe K-12 activities occurring over the ICN in their regions, highlighting the most significant events. Regional coordinators were asked during the summer to explain the positive impacts of the project in their region, to voice concerns, and to describe some of the activities conducted in their region. Responses are summarized below.

## Positive Impacts Across the State
Regional coordinators indicated that public relations efforts across the state were successful and that educators were more enthusiastic about using the system.
- **Teachers, students and citizens are more aware** of the ICN and of distance education and attitudes are more positive.

- **K-12 schools are beginning to take the initiative** in planning and delivering instruction over the ICN, including activities for elementary students, classes for alternative high school students, full semester courses in a variety of areas, and other creative uses of the network.
- **Teacher inservice and networking is occurring** on a regular basis over the ICN and teachers are being trained to become distance educators.
- **Increased levels of collaboration** between community colleges, AEAs, and local schools has occurred as a result of joint involvement in ICN activities.

## Regional Coordinator Concerns

Regional coordinators identified several key areas of concern.
- **Operational issues and policies and procedures** need to be addressed including the need for additional ICN classrooms (particularly in K-12 schools), additional equipment in the current ICN classrooms, scheduling ICN time, coordination of school calendars and class schedules, teacher compensation, teacher certification, material distribution, and costs for schools.
- **Information dissemination** was identified as an area in need of increased attention.
- **Teacher training** activities were viewed as important, as was consideration of alternative uses of the system.
- Coordinators identified a need for **more time** in order to effectively demonstrate ICN use for K-12 education. They were also concerned that infusion of distance education might not be a priority for the state without **continued funding**.

## Meeting Project Goals

Regional coordinators felt that significant progress was made across the state in reaching the goals identified in the Iowa Star Schools proposal. They noted that progress was slower than anticipated and that the process of change takes time.
- **Public relations efforts** and ICN demonstrations met with great success.
- **Teachers were trained** in distance education and Internet use and received support through released time, purchase of ICN and Internet time, and peer mentoring groups.
- **K-12 instruction occurred** over the network.
- **Schools were connected to the ICN** and provided with assistance in developing plans for use of the system.
- **Unprecedented collaboration** occurred among educational groups and across educational levels.

## Significant Events

Regional coordinators identified many significant events that occurred across the state as a result of the Iowa Star Schools project. The following provides a small sample of the types of ICN activities occurring in the regions:
- **Summer school for K-6 low-income** children (20% Hispanic).
- **Grants awarded to teachers** to develop Internet and ICN projects involving students.
- Fourth and fifth grade students **sharing science and social studies projects.**
- Elementary students participating in an **Invention Convention.**
- Students using the ICN to **share fossils discovered** on an archaeology trip.
- Students discussing DNA with an **expert from the Human Gene Therapy Research Institute.**
- **Portrayal of Carrie Chapman Catt,** a well known national leader for women's rights.
- Upper level language classes **using Internet to search databases** in those languages.
- Teams of students **designing and implementing environmental service projects** for KIDS C.A.R.E.
- Students **talking with U. S. Secretary of Education** and interviewing candidates for governor.
- **Early Childhood training** for area educators.
- Russian, French, and Spanish **language courses.**
- More than 800 K-3 students participating in a **storyteller series.**
- **Alternative high school classes** on parenting, handling stress, and drug and alcohol abuse.
- Sixth grade science students performing a **genetic survey.**
- High school students **comparing crime in two towns.**
- Middle school students connected with university **teacher education students as pen pals.**

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- Teacher inservice on **performance based assessment.**
- Elementary **talented and gifted students** sharing projects.
- Students talking with an engineer from Johnson Space Center and **building model Mars bases.**
- **Vocational students discussing entry level skills** with representatives from private companies.
- A regional **math bee.**
- Middle school students **discussing manned and unmanned space flight** with Dr. James VanAllen.
- High school students talking with community college **laser/electro optics instructors.**
- A **"Teens in Crime"** meeting with junior and senior students and Drake Law School faculty.


## State-wide Needs Assessment

During Spring, 1994 a **state-wide needs assessment** was conducted to determine instructional, staff development, and administrative needs at the K-12 level that could be met via the ICN. Focus groups involving teachers, administrators, media specialists, AEA personnel, community college representatives, parents, students, school counselors, school board members, and community leaders were facilitated by regional coordinators in each region of the state. Following identification of regional needs through these focus groups, a state-wide focus group was conducted over the ICN to prioritize needs at the state level.

Participants were asked to identify the most immediate **instructional needs for K-12** students state-wide that could be addressed through use of the ICN. Participants mentioned database access, skills classes, special education classes, and specialized classes such as Black Culture; however, the top three priorities were:
- **Courses not locally available,** particularly Advanced Placement (**AP**), Talented and Gifted (**TAG**), Post-secondary Enrollment Option (**PSEO**), and **Foreign Language** courses.
- Instructional units, **events or activities** including guest speakers, experts, demonstrations and field trips.
- **Student-to-student interactions** such as sharing projects and conducting joint research.

Priority **needs for resources and information** at the state-wide level included:
- Access to **Internet** and other electronic networks.
- Access to **special speakers** such as legislators, authors, historians, etc.
- Access to a database or **clearinghouse** with information on resources available on the ICN.
- **Student-to-student interactions** such as electronic pen pals, science fairs, student council meetings, etc.
- **Sharing instructors** across schools.

Critical **staff development needs** identified were:
- **Peer sharing** and networking within curricular areas.
- **State mandated inservice** and locally determined staff development opportunities.
- Credit and continuing education courses and **degree programs.**

**Administrative needs** that could be met through use of the ICN included:
- **Peer networking** and area or state-wide administrator meetings.
- Communication with **state officials.**
- **State mandated classes** and advanced degree programs.

Participants were also asked to identify the **primary barriers** to offering regional resources or accessing resources available in other regions using the ICN. The top three barriers included:
- **Lack of access** to ICN classrooms.
- **Lack of information** about what is needed and what is available.
- Administrative and local **operational issues** such as compensation for speakers and scheduling between schools without common calendars or class schedules.

# Regional Coordinators Future Directions Survey

A survey of regional coordinators in each of the 15 areas was conducted in August, 1994. The purpose of the survey was to collect information to help determine future directions for the ICN and distance education in Iowa. Sixteen coordinators representing 14 regions responded to the survey. The coordinators were asked to respond to four open-ended questions. First, they were asked to indicate the ways in which they see the Iowa Distance Education Alliance (IDEA) continuing. Next, they were asked to describe the roles and responsibilities of IPTV, the community colleges, the AEAs, the universities, the Department of Education, and others in continuing the work begun through the IDEA. The third question asked the coordinators to describe the future role of the Clearinghouse, and the last question asked them to indicate what they believe are the primary issues that will affect the successful use of the ICN for education.

## Continuing the IDEA
The most frequently mentioned ways for continuing the IDEA included:
- **Collaboration** and communication through such means as newsletters and continued meetings.
- **Sharing of resources**, curricula, and research.
- **Coordinated efforts to secure funding** through grants and to generate statewide interest in and awareness of the ICN.
- **Preservice and inservice** training.

## Roles and Responsibilities for IDEA Partners
The coordinators were asked to identify the roles and responsibilities of the IDEA partners in continuing the work begun by the IDEA. The most frequent responses are included below.
*Iowa Public Television*
- Providing **technical support**.
- Maintaining the **master schedule**.
- Providing **coordination** and communication between and among the groups.

*Community Colleges*
- Providing **regional scheduling**.
- Providing **regional coordination** and communication between and among the groups.
- Providing **regional technical support**.

*Area Education Agencies*
- Coordinating **K-12 inservice** and training.
- Providing **K-12 consultant help**.
- Facilitating **course sharing**.

*Universities*
- Providing upper level and/or **graduate courses** and programs.
- Preparing teachers to teach over the ICN through **inservice training**.
- **Preservice** training.

*Iowa Department of Education*
- Providing **leadership** in distance education.
- Leading discussions of distance education **policies and procedures**.
- Providing inservices and **staff development** offerings.

*The Clearinghouse*
- **Disseminating** and sharing information.
- Providing **scheduling information**.
- Providing **information about course offerings**.

*Others*
- Business providing money and site sharing.
- The legislature providing funding and being informed about distance education.

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<u>Primary Issues Affecting Successful Use of the ICN for Education</u>
A number of issues were believed to affect the successful use of the ICN for education. Those most frequently identified included:
- Funding for support of the existing system and for expansion of the system.
- Need for **staff development.**
- ICN **scheduling.**
- Need for **increased understanding, cooperation,** and **communication** between and among all educators and constituent groups.


## Iowa Opinions About Distance Education


Nearly 15,000 Iowans participated in demonstrations of interactive distance education during the two-year Iowa Distance Education Alliance (IDEA) project. A total of 1,385 Iowans completed surveys as a part of those demonstrations. Respondents were asked to indicate their level of agreement with a series of statements using a five-point Likert scale (1=strongly disagree and 5=strongly agree) and to respond to two open-ended questions. The results of those surveys provide an impression of Iowans' opinions about distance education.

Survey respondents were 55 percent female and 44 percent male (1% did not answer this question). More than half (55%) were between the ages of 36 and 55; 29 percent were 35 or younger, and 16 percent were 56 or older. Those responding to the survey tended to be highly educated with more than four-fifths (84%) having had some college course work, and close to one third (32%) having completed a postgraduate college degree. Three-fifths (60%) had little or no knowledge about distance education, and a large proportion (84%) found the demonstrations to be helpful or very helpful. Responses were received from 11 of the 15 regions in the state and from Iowa Public Television (IPTV).

<u>Areas of Agreement</u>
The majority of Iowans agreed that:
- Interactive distance education **will benefit K-12 education** in Iowa (76%), and will benefit both large schools (72%) and small schools (87%).
- Distance education **is important in providing access to resources** such as computer databases, educational experts, and networking (81%).
- The use of interactive distance education **will improve Iowa students' abilities to succeed** in a technological world (79%).
- **All teachers should receive training** on how to teach at a distance (65%).
- Teachers at remote sites need to know the course subject matter well (68%).

<u>Areas of Uncertainty</u>
Iowans were uncertain whether:
- Interactive distance education is **more appropriate for teaching students at the secondary level** than at the elementary level (42% agreed, 27% were undecided, 31% disagreed).
- Distance education will result in **fewer teaching positions** (40% agreed, 29% were undecided, 31% disagreed).
- **Discipline will be a greater problem** in interactive distance education classrooms (32% agreed, 37% were undecided, 30% disagreed).

<u>Benefits and Drawbacks</u>
Demonstration participants were also asked to answer two open-ended questions. After coding the responses and categorizing them, the **greatest benefits** that Iowans see in using interactive television for K-12 instruction are:
- The ability to offer **more classes.**
- Access to **experts.**

- Courses for small schools.
- Access to **educational opportunities**.
- **Preparing students** for a technological future.

The participants saw the **greatest drawbacks** as:
- Classroom **management**.
- Lack of **personal contact**.
- **Costs**.
- Maintaining student-teacher **interaction**.
- **Scheduling** difficulties.

## Student Opinions About Distance Education

Iowa students taking courses over the ICN were asked to complete surveys about their experience. Sixteen courses were surveyed and 177 students responded. Students were asked to indicate their level of agreement with a series of statements using a four-point scale (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree).

About half of the students were male (52%) and half female (48%) and nearly all were Caucasian (93%). Seventy-three percent were located at remote sites where the teacher was not physically present in the classroom. Grade levels ranged from 5th to 12th grades, but respondents were primarily 8th (21%), 11th (30%), and 12th (31%) graders. Seventy-seven percent were taking their first interactive television course. Subject matter areas represented included mathematics, science, literacy, foreign language, vocational education, and sociology. Surveys were submitted from five regions of the state.

### Technical Aspects
Although students were pleased with many of the technological aspects of the classroom, technical difficulties still created some problems. Students said:
- It was **easy to see the TV monitor** (98%).
- The **microphones were easy to use** (93%).
- Graphics and **visuals were easy to read** on the monitors (77%).
- It was **easy to hear comments** from students at the other sites (80%).

However,
- More than half said that **technical problems interfered** with their learning (59%).
- The majority **did not know how to report technical difficulties** (55%).

### Membership
Most students were satisfied with the level of interaction in the class and felt a sense of class membership. They felt that:
- **They were part of the class** (92%).
- **Remote site students were part of the class** (73%).
- They were **encouraged to become involved** in class discussions (77%).
- The teacher was **speaking directly to them** (63%).

### Instruction
Students appeared satisfied with the instruction provided by the teacher. Most indicated that:
- The class was **well organized** (84%).
- The teacher paid **attention to remote site** students (90%).
- The teacher was **available to answer their questions** (82%).

However, some aspects that affect the instructional environment were problematic for a significant number of the students.
- About half felt that **students were more disruptive** than in a regular class (52%).

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- Many said they **did not pay as much attention** as in a regular class (34%).
- Some felt it was **not as easy to pay attention** to the teacher on the TV monitor (25%).
- For more than half, **being "on TV" inhibited** their class participation (59%).

## Satisfaction
Although some felt they were not learning as much as in a regular class (32%) and many reported difficulties in getting information about interactive distance classes (58%), in general, students appeared to be satisfied with the distance learning experience. Most said:
- They would **take another** interactive television class (80%).
- They would **tell their friends to take** an interactive television class (75%).
- Overall, **they were satisfied** with their interactive television class (83%).

## Positive Aspects and Suggestions for Change
Students were also given an opportunity to answer two open-ended questions. Things they **liked best** about taking an interactive television class included:
- The opportunity to **meet and talk to other students** and to learn with and from them.
- The opportunity for a **new learning experience.**
- The opportunity to **take courses not available** in their local school.

The most frequent **suggestions for changes** or improvements included:
- Improvements in audio or video quality and **fewer technical problems.**
- **More time** on the system.

## Group Comparisons
T-test analyses were used to test for differences in student ratings among different groups.
- There were **no differences in ratings between male and female** students.
- **Remote students were more satisfied** with the experience and were more likely to indicate they would take another distance course and would tell their friends to take one than were students at the origination sites.
- **Remote students thought information was easier to get** and they were more likely to know how to report technical difficulties, although mean scores indicated that these areas were problems for both groups.
- **Remote students rated microphones as easier to use** and visuals as easier to read than did origination site students.
- **Remote students were more likely to believe they were learning as much** as in a regular classroom.

## Teacher Opinions About Distance Education

Eight K-12 teachers completed surveys after teaching a course using interactive television. These teachers taught nine courses over the system: three mathematics, one science, two literacy, two foreign language, and one vocational education. The teachers included five females and three males, two of the teachers were 25 or younger while four were 46-55. Six of the teachers had no previous experience with distance education. Three teachers had less than three years of teaching experience while five had more than 20 years of experience. Four teachers indicated a need for additional training in the effective use of the equipment, six for instructional planning for teaching over interactive television, and five for interaction techniques.

## Areas of Agreement
All teachers (100%) agreed that:
- The interactive system **allows appropriate use of media materials.**
- The equipment in the classroom is of **high quality.**
- It is **easy to manage** the equipment while teaching.

- Technical support is readily available.
- Specific skills are needed to be a successful distance teacher.
- They felt successful in encouraging remote students to become involved in class discussions and activities.
- They were confident in their abilities as interactive television teachers.
- Teaching in an interactive television class was a positive experience.
- Distance education is an effective way to learn.

Most teachers agreed that:
- The school is supportive of distance education (75%).
- Procedures for using the system are clear and reasonable (88%).
- The physical layout of the classroom was conducive to learning (76%).
- There was no difficulty getting materials to remote site students (72%).
- Remote site students learn as much as origination site students (75%).
- Teachers using the system receive effective training in distance education techniques (71%).
- The distance classroom allows for experimentation with new teaching techniques (88%).
- They were as effective teaching in an interactive television class as in a regular class (85%).
- They would encourage colleagues to teach over the system (88%).

Areas of Difficulty

Aspects that most agreed were problematic included:
- It was difficult to provide for the social and emotional needs of remote students (72%).
- Preparing materials takes more time than for regular classes (86%).

Some teachers also felt that:
- Technical problems interfered with student learning (51%).
- There were more discipline problems at remote sites (33%).

Positive Aspects and Suggestions for Change

Four of the eight teachers responded to two open-ended questions on the survey. What they liked best about teaching on an interactive television system included:
- Ability to interact and discuss with students at other schools.
- Opportunity to use different teaching techniques.

Things they would like to change or improve include:
- Better communication with site monitors.
- Resolution of scheduling conflicts across schools.
- More flexibility in room design.
- Ability to show copyrighted materials.

## TEACHER EDUCATION ALLIANCE

The Teacher Education Alliance (TEA) is composed of representatives from each of the three state universities; Iowa State University, the University of Northern Iowa, and the University of Iowa. The role of the TEA is to provide inservice training related to both curriculum reform and distance education, to promote the integration of distance education into the preservice teacher education curriculum, and to conduct research and evaluation activities related to the project. TEA inservice workshops and curriculum institutes have reached more than 1,000 Iowa teachers. A newsletter published by the TEA reaches more than 1,000 educators in the state, and preservice programs have begun to integrate distance education into the curriculum for preservice teachers.

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Preservice

The goal of the preservice component of the TEA was to assist teacher education programs in the state in incorporating distance education into their curriculum. A series of activities were held across the state during the two years of the project, including a survey of technology needs, a symposium at Iowa State University (ISU), a three-day writing workshop at ISU, a two day conference in cooperation with the Iowa Distance Learning Association at Drake University, and four colloquia held at ICN sites around the state. Evaluations of several of these activities indicated that participants felt these activities were valuable. In addition to these activities, the group prepared an Interactive Television Resource Guidebook that was distributed to each of the teacher preparation programs in the state; a newsletter was published (the d.l.i.t.e Illuminator) and distributed to all teacher preparation programs in the state; and several grants were awarded to teacher education faculty for innovative uses of distance education with teacher education students.

## Preservice Technology Survey
All teacher education institutions in the state were surveyed during Fall, 1992 to assess current technology applications and participation in distance learning activities. The survey determined that:
- **Faculty seldom used telecommunications** and interactive television technologies.
- **Students were more likely to use computers** and traditional media rather than multimedia and interactive television.
- **Distance education is typically included at an awareness level only** during teacher training.
- Graduate programs tend not to require a media/technology course.

## Preservice Symposium
Twenty-eight representatives from 15 teacher education programs attended a symposium on distance education in April, 1993. **Ratings for the institute were average to excellent.** On a five-point scale, participants rated the organization of the institute, opportunity for participant feedback, and long term applicability of the information highest (4.36, 4.31, and 4.31 respectively).

## Preservice Workshop
A workshop was held in conjunction with the first Iowa Distance Learning Association (IDLA) conference. **Six sessions were developed specifically for teacher educators.** Representatives from 17 teacher preparation programs attended. **Three of the sessions were rated as very good to excellent** on a six-point scale (Interactive Television Guidebook, Visual Presentations with Pizzazz, and Distance Education and the K-12 Curriculum) while **three sessions were rated good to very good** (The Logistics of Making Teacher Education Connections, Preparing Tomorrow's Teachers for Distance Education, and Enriching the Curriculum through Telecommunications). Participants indicated that the sessions were most useful in increasing their awareness of distance technology and demonstrating uses of the technology.

## Preservice Telephone Follow-up Survey
In order to assess the impact of the project on teacher education and to determine future needs, a telephone survey was conducted during September, 1994. Department chairs from all of the private teacher preparation programs in the state (28) were surveyed; a total of 22 responded. The following summarizes their responses.
- **Fifteen institutions reported participating in activities sponsored by the IDEA preservice group,** while seven reported no participation. The most frequently mentioned activities were the ISU symposium and the Drake conference, although some reported attending ICN meetings and the guidebook workshop. One reported receiving a mini-grant. Several of the institutions reported participating in activities, but were unable to identify the activity.
- **Sixteen institutions reported receiving the d.l.i.t.e Illuminator,** and six could not remember seeing it. The newsletter was primarily used for distribution or circulation to the faculty to

increase their awareness. Five reported that only the chairperson read it. Some reported sharing it with the media center director or computer technology person, while a few reported sharing it with students.

- Fifteen institutions were using the Interactive Resource Guidebook in various ways, primarily sharing it with others in the college, including administrators, methods teachers, media personnel, academic affairs committees, administrators, planning committees, and other faculty members in the department. Four institutions were using components from the guidebook in classes and one showed the video to classes. In three cases, the guidebook was not used or shared beyond the receiving faculty member. Seven of those interviewed did not remember seeing the guidebook.

- Most of the institutions reported integrating distance education into their teacher education curriculum at some level. Half of the institutions reported integrating distance education at an awareness or theoretical level, four show the students the equipment used in an interactive television class, and four provide some hands-on activities for the students. Eight of those interviewed indicated that their teacher education programs did not include distance education as part of the curriculum; six of those had no plans to include it, and two indicated they were not convinced of the need. Those including it at an awareness level or in current activities had plans to demonstrate interactive systems, simulate distance education environments, build interactive television classrooms, integrate distance education into seminar classes, and use interactive television for student and teacher observations. Some indicated that plans were still under development.

- Although five institutions reported no faculty involvement with distance education, the majority indicated that at least some faculty members had been exposed to distance education through meetings, demonstrations, workshops, downlinked programs, use of the Internet, and teaching activities and courses over the ICN. Eight institutions indicated there were no plans to increase the current level of faculty involvement.

- Most of those interviewed were not aware of administrative uses of distance education or of plans for administrative use. Six indicated that administrators were working on plans for integrating distance education on campus while others indicated that administrators have asked for an interactive television classroom, held meetings over a distance, used the Internet, and used the ICN for data traffic.

- When asked for their opinions about the top three issues related to the integration of distance education into the preservice teacher education curriculum, the responses received most frequently were (1) faculty involvement and training, (2) access to an interactive television classroom, and (3) money. Other issues to be dealt with included creating awareness that distance education is relevant to teacher education, scheduling and coordination issues, quality issues, competition among institutions, staffing issues, curriculum issues, access to resources, and planning.

- Respondents were also asked to indicate the appropriate groups or organizations to take a leadership role in the use of distance education for preservice teacher education. The most frequent responses were (1) the Iowa Association of Colleges of Teacher Education (IACTE), (2) the Iowa Department of Education, (3) other professional organizations in the curriculum areas and in technology (ICTM, ISTA, ICUE, ASCD, etc.), and (4) the teacher education departments themselves. Other responses included forming a special task force, the regent institutions, the AEAs, local school districts, NCATE, and the presidents of the colleges.

- When asked to rate the importance of including distance education in preservice teacher education on a one to ten scale (one indicating not at all important and ten indicating extremely important), nearly all of the 22 respondents rated it in the upper half of the scale (6 to 10). Thirteen rated the importance 6 or 7, five between 8 and 10. Only four institutions rated it 5 or lower.

- Three of the institutions were connected to the ICN. Six planned to connect within the next year and three within the next five years. Six indicated they plan to connect but no timeline had been established. Four institutions had no plans to connect to the ICN.

## Curriculum Institutes

The goal of the curriculum institutes was to familiarize Iowa K-12 teachers with the most recent curriculum reform efforts. Sessions were conducted in five targeted content areas (mathematics, science, foreign language, literacy, and vocational education). The institutes were planned to serve 594 Iowa educators (three from each of Iowa's 99 counties each year of the project); a total of **555 attended the institutes**. In 1993 the five institutes were each held at university sites, each using a five-day format, but in 1994 the institutes had a variety of formats. All five content areas participated in a two-day general curriculum session held at 22 sites across the state over the ICN and each held an additional session for the specific content area. The mathematics and science sessions were held prior to the general session, with each held on three Saturdays over a period of three months using 15 ICN sites each. The literacy, foreign language, and vocational sessions were held following the general session. Literacy was held for three days at the University of Northern Iowa, foreign language for five days at the University of Iowa, and the vocational session connected three sites around the state over the ICN for three consecutive days.

### Curriculum Institute Overall Summary

- **Nearly all (92%)** of those attending the institutes were **K-12 classroom teachers.** The remainder were K-12 administrators, curriculum coordinators, media specialists, and AEA consultants.
- About **half (53%) taught only at the high school level**, while 12 percent taught only at the junior high or middle school level and 9 percent at both the junior high and high school levels. Sixteen percent were elementary teachers.
- Thirty-one percent had less than ten years of experience as an educator, 29% had 11-20 years of experience, and one-third (34%) had more than 20 years of experience.
- Few participants (6%) **had ever taught over an interactive television system.**

Evaluation forms for the institutes consisted of several common Likert-scale items and two open-ended questions. Overall ratings, both year one and year two, indicated that participants felt the institutes were above average to excellent. Specific areas scoring high on the five-point Likert scale during the two years included:
- The **quality of the speakers** and materials.
- The **opportunity for participant interaction.**
- The **applicability** of the information.

Ratings for the two years suggest two areas for **improvement:**
- Improved quality of the **information received prior** to the institute.
- **Clarification of objectives.**

Comparisons of ratings also show that year two sessions utilizing the ICN as a delivery mechanism had lower overall ratings than those utilizing the more traditional format of bringing teachers to campus.

In response to the open-ended questions, the aspects identified as **most useful** were:
- **Sharing** with other teachers.
- **Using the equipment.**
- Learning about/**using the ICN.**
- **Teaching examples/strategies**

In general, suggestions for improvement focused on providing more of the things the participants liked best. The most frequently mentioned areas for **improvement** were:
- More **time for sharing** and discussion
- More **time to use the equipment**
- More **hands-on activities**
- More **teaching examples**
- **Better information** prior to the institute.

Pre- and post-assessment results for the two years from each of the five content specific sessions indicate that **participants learned a great deal.** Pre-assessment scores ranged from 1.14 to 4.00 on a five-point scale, while post-assessment scores ranged from 1.89 to 4.48 on a five-point scale.

In comparing the content areas, **overall satisfaction ratings were highest both years for the literacy institute** and lowest both years for the mathematics institute. The three institutes that used the ICN for delivery in 1994 (mathematics, science, and vocational) all showed significant declines in overall ratings and in ratings on most evaluation items compared to 1993.

## Curriculum Institute Content Areas
Each of the five content areas conducted institutes in each of the two years of the project. The following provides a brief synopsis of evaluation results by content area.

- **Mathematics**: 75 educators attended the 1993 mathematics institute and 88 attended in 1994. 97% each year were K-12 classroom teachers. Most had no previous experience with interactive television instruction (89% in 1993 and 78% in 1994). Pre- and post-assessments indicate that participants gained knowledge as a result of attending the institute. Overall effectiveness ratings were 3.61 in 1993 and 2.91 in 1994 on a five-point scale (1 indicating poor and 5 indicating excellent). On most items, ratings declined from 1993 to 1994 with the exception of information about using interactive television in mathematics instruction which improved from 3.05 to 3.13. In 1994 the institute was held using the ICN rather than using face-to-face instruction. 81% of the 1994 participants were satisfied or very satisfied with using the ICN for instructional delivery and 95% with conducting the institute on separate rather than consecutive days. Sharing with other teachers and teaching examples were noted as useful components both years.
- **Science**: While 67 educators attended the science institute in 1993, 82 attended in 1994 and most both years were K-12 classroom teachers (89% and 88% respectively). Most knew little or nothing about distance education (85% in 1993 and 79% in 1994). Pre- and post-assessments indicate that learning occurred. The overall effectiveness ratings ranged from 3.75 in 1993 to 3.16 in 1994 on a five-point scale (1 indicating poor and 5 indicating excellent). Means for consistent items dropped slightly in 1994, with the exception of ratings on information about alternative assessment which improved. Most participants were satisfied or very satisfied with using the ICN to deliver the institute (89%) and with using three separate rather than three consecutive days (96%). While the science education reform session was most frequently identified as the most useful component in 1993, the teaching examples were noted most frequently in 1994.
- **Foreign Language**: 34 educators (88% classroom teachers) attended the foreign language institute in 1993, while 29 (100% classroom teachers) attended in 1994. The majority knew little about distance education prior to attending the institutes (69% and 71%). Pre- and post-assessments both years indicated that participants learned a great deal. Gains were larger in 1994 than in 1993. Overall effectiveness ratings for the institutes (using a 5-point scale with 1 indicating poor and 5 indicating excellent) were 3.97 in 1993 and 4.10 in 1994. Evaluation ratings improved from 1993 to 1994 in several areas including clarity of objectives, effective use of time, information about computer facilitated foreign language instruction, and applicability of the information. In both years, participants identified learning about Hypercard and learning about the ICN as the most useful components of the institutes.
- **Literacy**: While 30 participants attended the literacy institute in 1993, 46 attended in 1994. Most were K-12 classroom teachers (97% in 1993 and 85% in 1994). Attitudes towards the effectiveness of interactive television for instruction improved dramatically each year. Pre- and post-assessments indicate that learning occurred.

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Post-assessment scores were slightly lower in some areas in 1994. Overall effectiveness ratings for the literacy institutes were 4.57 in 1993 and 4.55 in 1994 (using a 5-point scale with 1 indicating poor and 5 indicating excellent). Ratings for individual items showed little fluctuation between the two years. The opportunity to interact and share with other teachers was one of the components identified as most useful both years of the institute as was the quality of the speakers and presenters .

- **Vocational Education:** The number of participants in the vocational education institute doubled from 1993 to 1994 (26 and 56 respectively). Nearly all those attending were K-12 classroom teachers (97% and 91%), primarily at the high school level. One region of the state did not send participants in either year. Pre-and post-assessment scores were somewhat lower in 1994 than in 1993 for most items. Overall effectiveness ratings for the institutes were 4.33 in 1993 and 3.66 in 1994 (using a 5-point scale with 1 indicating poor and 5 indicating excellent), although 94% in 1994 indicated that they were satisfied or very satisfied with using the ICN to deliver the institute. One of the three sites used for the 1994 vocational institute had significantly lower ratings than the other two sites. For the other two sites, ratings for applicability of the information and information about workplace readiness exceeded the 1993 ratings. While using the equipment was most frequently identified as the most useful component in 1993, the most useful components identified in 1994 were the workplace readiness materials and the teaching examples.
- **General Session:** 269 mathematics, science, foreign language, literacy, and vocational educators (93% K-12 classroom teachers) attended a two-day general curriculum reform session in 1994. This session was designed to address reform issues common across the content areas. The overall satisfaction rating for the general session (on a four-point scale with 1 indicating very unsatisfactory and 4 indicating very satisfactory) was 3.02, with 84% of the participants indicating the session was satisfactory or very satisfactory. The aspects of the session mentioned most frequently as positive were the teaching examples and the opportunity to share and interact with other teachers.

## Inservice Workshops

Inservice workshops on distance education were held around the state both years of the project. These workshops were held at more than 35 sites and provided participants with hands-on experience with interactive television technology. During 1992-1993, data were collected from all 16 of the workshops held. During 1993-1994, 22 workshops were conducted (18 three-day and 4 one-day). Data were received from 15 workshops. Workshop coordinators estimated that approximately 900 Iowa educators participated, however, only 633 of the participants completed a demographic survey during the two years of the project; 344 during the first year, and 289 during the second. Data were unavailable for the remainder of the participants. In addition, workshop pre- and post-assessments and evaluations were collected only during the 1992-1993 workshops. The results presented in this section may not reflect the entire population of educators trained during the workshops.

### Description of Participants
Among the 633 participants submitting information:
- 54% were female; 44% male.
- 42% held a bachelor's degree; 48% a master's; 7% a doctorate or education specialist.
- The average number of years as an educator was 18, with a range from 1 to 45 years.
- **60% were K-12 classroom teachers;** other participants included AEA staff (9%), K-12 media specialists (9%), K-12 administrators (4%), K-12 curriculum coordinators (2%), K-12 guidance counselors (1%), and community college instructors (11%).

- 36% taught mathematics or science or both; 13% taught in the area of literacy; 12% were vocational educators; 7% taught a foreign language; 9% taught media or computer courses; 4% classified themselves as elementary teachers; 15% taught in other areas.
- 9% taught at the elementary level; 7% middle school/junior high ; 45% **high school** ; 14% postsecondary; and 13% taught across levels (3% elementary/middle, 6% junior high/high, 4% high/postsecondary).
- 9% had previous experience with interactive television instruction.

### Workshop Ratings

Evaluation results indicate that response to the workshops was overwhelmingly positive. **Overall evaluation ratings on a five-point scale generally were above 4.50 for each workshop.** The overall rating for all workshops was 4.87 (1=poor, 2=below average, 3=average, 4=above average, 5=excellent), with 87% rating the workshop as excellent. Nearly all participants rated the workshop as above average to excellent in:

- The clarity of its objectives (99%).
- Effective use of time (95%).
- Providing opportunities for participant interaction (99%).
- Applicability of information (99%).
- Organization (98%).
- Providing experience with distance learning systems (97%).
- Providing information about critical issues in distance teaching (98%), teaching and learning strategies (96%), interactive technologies (98%), and research findings and evaluation strategies (88%).

In responding to open-ended questions, participants indicated that the **most useful aspects** of the workshops were
- **using the equipment,**
- **sharing with other teachers,** and
- **discussion of critical issues.**
The most frequently mentioned **suggestions for improvement** were
- allowing **more time** to use the equipment, specifically the ICN, and
- providing **examples** of good television teaching.

### Pre- and Post-Assessments

Pre- and post- assessment results indicated that **participants learned a great deal. Paired t-tests of** pre- and post-assessn nt scores indicate **significant differences on every item.** At the completion of the workshop, participants knew more about the unique characteristics of interactive television, components of the system, the rationale for its use, resources needed to use the system, operation of the equipment, teaching strategies for distance instruction, how to develop lessons to use on the system, research and critical issues related to se of interactive television, and how to evaluate its use.

Pre- and post-assessment comparisons of participants with different educational levels (Bachelors degree versus beyond a Bachelors degree) showed no differences in scores. However, comparisons of K-12 classroom teachers with other participants showed differences. **Teachers had less experience with interactive television prior to the workshop** and rated their level of knowledge lower on every item on the pre-assessment compared to other participants. No difference in knowledge was evident on the post-assessments, although ratings of the effectiveness of interactive television for instruction were significantly lower for teachers than for the other group.

On the pre-assessment, participants were asked **how they felt** about interactive television. The most frequent responses were:
- **Excited** about the opportunities it offers.
- **Very uninformed.**
- **Undecided** or mixed feelings.

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The most frequent ways they **envisioned interactive television being used** were to:
- **Broaden the curriculum.**
- **Help small rural schools.**
- Provide **advanced classes.**
- Provide **college-level classes** and adult education.
- Provide **inservice for teachers.**

On the post-assessment, participants were asked to list the greatest benefits and greatest challenges of using interactive television. The top four responses in each category are listed below.
- **Benefits**: (1) **expanding course offerings**, (2) opportunities for **teacher inservice**, (3) **reaching more students** using technology, (4) **college credit classes** and continuing education opportunities.
- **Challenges**: (1) **more time** required for preparation, (2) **mastering** the **equipment**, (3) interacting with **remote site students** and keeping them involved, (4) coordination and **scheduling.**

Participants were also asked **what their school would need to do** in order to use interactive television. The most frequently mentioned items were:
- **Modify scheduling.**
- **Acquire** additional **funding.**
- **Build** a classroom.
- Make a **commitment** and provide leadership.

## Verification Survey

At the conclusion of the first year of the Iowa Star Schools project, participants in workshops and institutes were mailed a survey to verify the accuracy of the evaluation findings. This survey was recommended by the project's external evaluators during their first year site review. A random sample of 212 participants were mailed the survey as well as copies of evaluation findings from the first year of the project. One hundred and twelve responded (53%). Overall, they felt that the evaluation results were what they expected and that the **methods and instruments used for evaluation were adequate**.

## Participant Follow-up Survey

As a conclusion to the Iowa Distance Education Alliance curriculum institutes and inservice workshops, a follow-up survey was mailed in September, 1994. The survey was designed to determine the level of use of the ICN by the participants and to assess the perceptions of participants about critical needs in the state that are important to address if distance education is to succeed in Iowa. A total of 710 teachers were surveyed and 325 replied (46%). Among those responding to the survey:
- 63% were female; 37% male.
- **75% had been teaching for over ten years**; 22% for ten years or less.
- 59% held only a bachelor's degree; 38% a master's degree.
- 27% have an ICN classroom in their school building.
- **21% have actually used the ICN.**
- 18% teach at the elementary level; 11% middle school or junior high; 56% high school; 13% at multiple levels (2% elementary/middle, 9% junior high/high, 2% high/postsecondary).
- 48% **taught either mathematics or science or both**; 20% literacy; 17% vocational education; 12% foreign language ; 3% other social sciences.
- 27% attended only an inservice workshop; 28% only a curriculum institute; 43% both.
- 37% attended project activities during 1993; 53% during 1994; 9% attended both years.

The teachers were asked to rate the adequacy and importance of 19 items related to teachers' use of the ICN for K-12 instruction. The items were rated on six-point scales. For the importance scale, 1 indicated very unimportant and 6 indicated very important. Items were ranked based on the mean score and the percent of respondents rating the item as 6, very important. The items rated **most important** were:

- Teacher **planning time** for distance teaching (Mean=5.44; 61% rating it very important).
- Distance education **technical training** for teachers (5.41; 58%).
- Proximity of **ICN classrooms** to school buildings (5.38; 59%).
- **Scheduling** procedures for the ICN (5.34; 54%).
- **Principal support** for distance teaching (5.32; 50%).
- **Supervision of remote site** students (5.31; 57%).

Teachers were also asked to indicate how adequately these same items are currently being addressed in the state, with one indicating very inadequately and six indicating very adequately. In looking at the adequacy ratings, the highest rating (4.10 on a 6-point scale) is still just somewhat adequate, indicating that improvement is needed in all 19 areas. The items rated as **least adequate** (items with the lowest means and the greatest percent of 1, 2 or 3 ratings) were:

- Teacher **planning time** for distance teaching (Mean=2.22; 84% rating it inadequate).
- **Extra pay** for ICN teaching (2.38; 77%).
- Teacher **released time** for distance teaching (2.47; 76%).
- School **district policies** for ICN use (2.70; 68%).
- Teacher **recognition** for ICN use (2.87; 67%).
- **Scheduling** procedures for the ICN (3.01; 61%).

**"Need" was defined as the difference between the adequacy** rating and the importance rating for each item. Fifteen of the 19 items had a difference of more than 1 point, indicating a need in that area. The four items having less than a one point difference between adequacy and importance were related to confidentiality policies, superintendent support, access to ICN information, and design of the ICN classroom. The six items with the **largest differences between adequacy and importance** were:

- Teacher **planning time** for distance teaching (difference=3.22).
- Teacher **released time** for distance teaching (difference=2.77).
- **Extra pay** for ICN teaching (difference=2.43).
- **Scheduling** procedures for the ICN (difference=2.33).
- Proximity of **ICN classrooms** to school buildings (difference=2.25).
- School **district policies** for ICN use (difference=2.14).

Teachers were also asked to respond to open-ended questions. When asked to list the **issues** they believe are important and need to be addressed for successful K-12 instructional use of the ICN, the most frequently mentioned responses were:

- **Access** to ICN sites and equity in site selection
- Teacher **preparation time and pay** for distance teaching
- Distance education **training**.

When asked to indicate the **single issue of greatest concern**, the top three items were:

- **Access** to a site and equity in site selection
- The **costs** of distance education for local schools
- Teacher **preparation time** and additional **pay** needed.

Teachers were then asked to indicate what **actions need to be taken** to resolve issues for K-12 use of distance education. Two suggestions were mentioned most frequently:

- **Government support** (both state and federal) for distance education costs.
- Providing **teacher training** in distance education.

## TEA Group Survey

During January, 1994, coordinators of each component of the TEA were asked to describe activities conducted over the ICN and to highlight significant activities conducted as part of the Star Schools project. Some of the activities described include:
- Use of the ICN for student teachers to observe exemplary classroom practices.
- Use of the ICN for the mathematics institute.
- Three literacy "teacher swapshops" held over the ICN.
- Using the ICN to evaluate the oral competency of over 90 foreign language teachers.
- A vocational education presentation at the Iowa Distance Learning Association conference using the ICN.

## TEA Future Survey

The members of the Teacher Education Alliance were surveyed during their last meeting, September 29, 1994 about their perceptions of the future of distance education in Iowa.
Respondents identified several key areas that will affect the successful use of the Iowa Communications Network (ICN) for education. These included:
- Resolution of **management issues** including ownership and control of the system, additional connections to the network, scheduling conflicts, and financial and administrative support.
- Continued **training for teachers** at both the preservice and inservice levels and additional training for administrators.
- Increased **dissemination of information** about distance education to teachers, administrators, school boards, and the general public.

### Continuing the IDEA
Respondents agreed that the IDEA and the TEA should continue their existence in one form or another. While some advocated the creation of a formal organization, others mentioned informal alliances, cooperative efforts, and working teams. Continuation of the group was seen as important for:
- Developing **future proposals** for further funding.
- Conducting follow-up studies and other **research** activities.
- Providing **leadership** for systemic change.

### Roles and Responsibilities for IDEA Partners
Respondents were asked to describe the roles that various groups should have in continuing the work begun by the Iowa Star Schools project. The roles identified are summarized below.
*Regent Institutions*
- Leadership role in **pursuing future funding**.
- Continued focus on **inservice and preservice** training for teachers.
- **Evaluation** of distance education in Iowa.
- Continued **research** in the area of distance education.
- **Collaboration** among institutions.
*Iowa Public Television*
- **Public relations** and information efforts.
- Maintaining a **state-wide alliance**.
- **Liaison** with state government.
- Improving **access** to the ICN.
*Community Colleges*
- **Scheduling** and management of the system.
- **Staff development**, particularly in the vocational education area.

*Area Education Agencies*
- Teacher **inservice** training.
- **Disseminating information** to local schools, teachers, and administrators.
- Providing **leadership at the K-12** level.

*Department of Education*
- **Disseminating information** on distance education.
- **Seeking funds** for use in distance education projects and research.
- Taking a proactive approach in **resolving management and structural issues** related to K-12 use of the ICN, such as teacher certification, staffing issues, and scheduling issues.

*Clearinghouse*
- Collecting, maintaining, and disseminating information and **maintaining a database**.
- **Assisting** teachers and students in **accessing information**.


## Research


The research component of the TEA conducted activities designed to further the level of knowledge about distance education both in the state and in the profession. To accomplish this mission, the following activities were completed:
- Published a **monthly newsletter**, TEA Times, with a circulation of 1,300. Recipients included all IDEA members, participants in all TEA workshops and institutes, all state legislators, and numerous others with an interest in the project.
- Prepared a **monograph**, Distance Education: A Review of the Literature, which was published by the Association for Educational Communication and Technology (AECT).
- Funded **16 research projects** dealing with distance education in Iowa. Findings were complied and published in an encyclopedia of distance education research.
- Prepared a series of **eight single-concept videos** for distribution to all preservice teacher education programs in Iowa and a video titled **"A Room with a View,"** for distribution throughout the state.
- Assembled a **library of distance education** journals, texts, and other references.
- **Published articles** in professional education journals.


# COMMUNICATION AND RESOURCES CLEARINGHOUSE

The Iowa Distance Education Alliance Clearinghouse component developed a database with assistance from the North Central Regional Education Laboratory (NCREL). This database is available over the Internet. The Iowa Database contains information related to distance education, the Iowa Star Schools project, and other education databases. Since the Clearinghouse was not operational until midway through the second year of the project, it was not possible to initiate evaluation activities until the final stages of the project. Evaluation of the Clearinghouse consisted of four parts. First, a survey was placed on the database in August, 1994 with a request for those accessing the database to complete the instrument either electronically or on paper. Second, a data log was provided by NCREL to the evaluation team for analysis of what portions of the database were being accessed and how frequently. Third, the AEA personnel responsible for conducting teacher training activities on the Internet in the regions were surveyed. Fourth, two questions were included on a follow-up survey of teachers who attended workshops and institutes sponsored by the project to assess their level of use of the database.

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## On-line Database Survey

Seven surveys were completed and responses were transmitted electronically from NCREL to the project's evaluation team. The surveys were completed by two K-12 teachers, a K-12 student, an AEA staff member, a K-12 computer coordinator, a research manager for a state agency, and a respondent from the federal government. Their responses are summarized below:
- **Three** had **attended Internet training** sessions.
- One of the teachers had accessed the database 2 to 5 times, and the AEA staff person had logged on between 5 and 10 times. The rest were using the database for the first time.
- **Three** of the respondents found the database **easy to access**, while **four** indicated it was **difficult to access.**
- **Six** indicated the database was **somewhat useful**, and the seventh that it was useful.
- One indicated the database did not meet their expectations, five indicated that it **partially met their expectations** and one indicated that it met expectations.
- Overall ratings of the database ranged from 3 to 8 on a ten-point scale, with two people giving it an eight. The overall **average rating was six.**
- When asked about the most useful aspects of the database, two respondents were unsure while two others felt it was a useful place to obtain information.
- Other information the respondents would like to see on the Iowa Database included:
    * Demographic and social information about Iowa, such as Census data.
    * ICN availability and usage.
    * A file of highest elected officials for all cities and counties in Iowa.
    * A link with the Iowa General Assembly, state agencies, and state universities.

## Database User Logs

The Iowa Database has five major sections:
- Star Schools, which contains information about the Iowa project.
- ICN, which contains information about Iowa's fiber optics network, including class schedules, programming needs, ICN tips, and distance education information.
- State Reports, which contains information from the Iowa Department of Education including the Technology Commission Report, Phase III handbooks and plans, and state-reported data.
- Matchmaker, which contains information from the regions about personnel, staff development, and local school districts.
- World of Education, which provides access to numerous other educational databases.

NCREL provided the evaluation team with a user log for the Iowa Database that listed all users and what files they had accessed between April 1, 1994 (when the database became operational) and August 1, 1994. Based on the database user log provided by NCREL, it appears that **264 persons accessed the database** during that time period. The points below summarize the types of users who have logged into the database.
- **Thirty-three accessed the database through Infonet and seven through Des Moines Net.**
- **Thirty-four users were from colleges in the state**, including Iowa State University, University of Northern Iowa, University of Iowa, Drake University, and Cornell College.
- **Thirty-six teachers and AEA personnel accessed** the database using passwords obtained from the Star Schools project.
- Two additional K-12 and two AEA users accessed the database with passwords not provided through the Star Schools Project.
- Other users included **22 from out-of-state colleges** and universities, one from a city library, 8 from **government entities** such as the Iowa legislature, NASA, the U.S. military, and the Iowa Department of Education, and 32 from **private companies** and other organizations.
- In addition, there were **87 users that were unidentifiable** from their address; 30 of these logged on but never accessed a file.

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Individual users accessed the database from one to 24 times, although most persons had accessed the database only from one to five times. The points below summarize the primary files accessed in the database.

- The **ICN folder was accessed 228 times.** The most frequently accessed files were how to use ICN/tips, regional and state newsletters, graphics, listing of schedule of classes, and K-12 program offering needs.
- The **State Reports folder was accessed 180 times.** The most frequently accessed files were the BEDS documents for public schools and the Technology Commission Report.
- The **Matchmaker folder was accessed 141 times.** The most frequently accessed files were the personnel directory and the list of school districts by AEA.
- The **Star Schools folder was accessed 116 times** with the project summary the most frequently accessed file.
- The World of Education folder reported no access through August 1, 1994. However, this portion of the database was added during July.

### Survey of AEA Personnel

Personnel from all fifteen of the AEAs responded to a telephone survey of those responsible for regional teacher training activities on Internet. The results of the survey are summarized below.

- **113 formal and informal Internet training sessions were conducted by the AEAs** during the past year. The number of sessions per AEA ranged from two to 32. The types of session varied from two-day to half-day to one-hour training sessions. In some cases the training was offered over the Internet, although in most cases, it was provided in face-to-face sessions.
- **The majority of the AEAs do not collect information about the training session participants.** Those that did most frequently collected names of the participants and the school districts represented. One AEA recorded the passwords of the training session participants.
- **Two-thirds of the AEAs (10) did not provide a demonstration of the Iowa Database** during the Internet training sessions. One AEA tried to demonstrate it but was unable to access the system. The majority (9) indicated that they have provided information about the Iowa Database either during or following the Internet training sessions.
- **Four of the AEA coordinators reported that they are quite familiar with the Iowa Database,** ten said they were not very familiar with it, and one coordinator had never heard of the database.
- The coordinators were able to provide only estimates of the number of school districts and teachers who are active users of the Internet. **In all regions, the districts and teachers are actively using the Internet, although it is impossible to identify how many,** since it is not possible to monitor usage of the system.
- **Teachers in six of the AEAs connect to the Internet through NetIowa, four through the Star Schools slip to ISU, and five use both methods to connect.**
- The AEA coordinators offered a number of suggestions of **what to include on the Iowa Database.** The most frequently mentioned suggestions included **curriculum material (6),** followed by **information about computer software (5), a forum to enable teachers to "talk" to one another (3),** information about **teaching tips** and best practices for teaching (3), and **information about telecommunications and technology (3).**
- Other comments about the Iowa Database made by the AEA coordinators are summarized as follows: the **Iowa Database is likely to have a valuable role in Iowa,** but the training to date has been insufficient to result in widespread usage in the schools. **More information is needed about the database,** but it is important to keep in mind that implementation of the Internet in schools is a slow process and that equipment needs, teacher time, and costs need to be taken into account. It was suggested that the Iowa Database be part of the Iowa Department of Education.

## Participant Follow-up Survey

During September, 1994, 710 Iowa teachers who had attended inservice workshops on distance education and institutes on curriculum reform sponsored by the IDEA were surveyed. A total of 325 responded (46%). The majority of respondents (54%) had attended activities during 1994 while slightly more than one-third (37%) had attended in 1993. Nine percent attended activities both years. Many had attended both an institute and a workshop (44%) while the remainder attended either a workshop only (28%) or an institute only (29%).

- Slightly more than **one-fourth** (27%) of the respondents reported **attending an Internet training** session sponsored by the project and conducted through the local AEAs. These Internet workshops were to include information about the Iowa Database, although as indicated in the previous section, many did not.
- **Thirty-three teachers** (10%) reported having **accessed the Iowa Database.**

# SUMMARY BY GOAL

Presented below is information about the accomplishments of the Iowa Distance Education Alliance by project goal. Six goals were identified for the project. Overall, the project was successful in completing all activities identified in the original proposal.

In order to meet deadlines for providing information to Project Management, some data were summarized prior to the end of the project. This report, therefore, may not include all activities that have occurred through September 30, 1994. Data for this report were collected from the Communication and Resources Clearinghouse (Clearinghouse), all 15 Regional Partnerships, and all components of the Teacher Education Alliance (TEA).

### Goal 1
Distance Education in Iowa using the fiber optic telecommunications network will be conducted in a COORDINATED and systematic manner.

Goal one included four objectives with 11 activities. All objectives and activities were accomplished during the project.

- A national search was conducted and a **project director hired.**
- A blueprint for project completion was **developed.**
- Fifteen **regional partnerships were established** and regional coordinators designated.
- Regional **advisory committees were established** with representatives from public and private K-12 schools, Area Education Agencies (AEAs), and colleges and universities.
- **Regional plans were submitted** and approved in years one and two of the project.
- The **Teacher Education Alliance was established** and a coordinator identified.
- A retreat was held for project partners to enhance communications and **regular meetings were conducted** either face-to-face or over the Iowa Communications Network (ICN).
- Project Management established a newsletter (Connections) and A **TEA newsletter was developed** and mailed to 1,300 persons each month to provide information to project partners and participants in project activities.
- A **Communications and Resources Clearinghouse was established** and a director identified.
- Other personnel were identified to assist project management in coordination of the project.

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## Goal 2
**Instruction using a statewide two-way full motion interactive fiber optic telecommunications network will be UNDERSTOOD and ACCEPTED by Iowans.**

Goal two included four objectives and identified 26 activities. All objectives and activities outlined were accomplished during the project.

- **Electronic statewide meetings were conducted** by Project Management in cooperation with the Iowa Department of Education over the ICN.
- Several **videotapes were developed** by both Project Management and the TEA for use at presentations.
- A variety of **pamphlets and brochures were developed** by Project Management, the Regional Partnerships, and the TEA for promotional use.
- **Media events were coordinated** and information was provided to both print and broadcast media in the form of announcements and public interest stories. A clipping service was used to collect media stories concerning the ICN and the project.
- Regional **coordinators made presentations about the ICN and the project to more than 3,180 groups** around the state utilizing videotapes and printed materials developed by the project.
- Regional coordinators held **930 demonstrations of the ICN with nearly 15,000 Iowans attending** to allow citizens to see the system in operation. Demonstrations were provided to teachers, students, school administrators, school boards, ABE/GED coordinators, civic groups, and at local school open houses.
- A total of **1,385 Iowans** completed surveys at the conclusion of demonstrations of the ICN. They **overwhelmingly agreed (84%) that the demonstrations were helpful** or very helpful in helping them understand the ICN. At the conclusion of the demonstration, **most agreed that interactive distance education will benefit K-12 education (76%)**, will improve students' abilities to succeed in a technological world (79%), and that it is important in providing access to resources (81%). The majority also agreed that **all teachers should receive training in how to teach at a distance (65%)**.
- **All regions held area-wide meetings of educators** with participants from K-12 schools, AEAs and community colleges. These meetings were held both face-to-face and over the ICN.
- ICN demonstrations were held at local schools with points-of-presence, and **printed materials** about the ICN and the project were **distributed to all school districts** in the state.
- Information related to the project was **published in local newsletters** and other written materials sent to students, parents, teachers and other educators in the state. These included AEA newsletters, local school newsletters, other education newsletters, registration materials, and school annual reports.
- A number of **articles were published in both state and national journals.**
- A number of activities were scheduled over the network. A total of **4,663 participants attended meetings and other activities on the ICN.** These groups included school boards, principals, teachers, K-12 students, GED students and instructors, and civic groups. In addition, 6,763 community college students took courses over the ICN.
- **Five student telecommunications clubs** were planned and 53 students are currently participating.
- A booklet listing **contact persons for each of the ICN sites** was developed and distributed.
- A **statewide conference was held for school board members**, coordinated by Project Management.
- **Materials** related to the project were **distributed at the Iowa State Fair.**

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## Goal 3
**Iowa educators will be PREPARED and SUPPORTED so they can effectively teach students at a distance.**

Goal 3 included four objectives and 19 activities. All objectives and activities were accomplished during the project.

- A **monograph** on distance education was written and **published.**
- Several **meetings were held for representatives of all preservice teacher education programs** in the state, including a day-long symposium, a three-day writing session to work on a curriculum guidebook, a two-day conference, and several colloquia conducted over the ICN for teacher education faculty. Participants from fifteen private institutions as well as the three state universities attended activities sponsored by the preservice component.
- An **Interactive Resource Guidebook was developed** and distributed to all preservice teacher education programs in the state to use in incorporating distance education into the preservice curriculum. **Fifteen private institutions and the three state universities report using the guidebook** in various ways. Most institutions reported integrating distance education into their curriculum at some level.
- **Nearly 1,000 teachers, administrators and other educators have been trained in the use of interactive distance education** through 34 three-day inservice workshops and four one-day workshops provided by the inservice component of the TEA at sites across the state.
- A **system manual was prepared** and distributed covering ICN operational issues, a videotape was compiled of exemplary teaching strategies, workshop guides and manuals were developed and distributed, videotaped and audio taped versions of the workshops were produced for distribution to the regions, and a computer-based multi-media program was developed for use in delivering the workshop content.
- **Graduate level courses in distance education were offered** by the state universities. Graduate credit was also offered by all three regent institutions for participation in institutes and workshops offered by the project.
- TEA representatives **collaborated with statewide curriculum reform groups** in developing curriculum materials to be used in teacher training.
- **Five-day institutes on curriculum reform** in mathematics, science, vocational education, literacy, and foreign language were held in each of the two years of the project. During year one, all of the institutes were held on university campuses. During year two, the majority of the activities were conducted over the ICN, including a two-day session integrating all of the curriculum areas. A total of **555 educators (92% classroom teachers) attended** the institutes. Participants were impressed with the quality of the speakers, appreciated the opportunity to interact with other teachers, and felt the information was applicable. Pre- and post-assessments indicate that participants learned a great deal.
- An additional **22 inservice courses and 142 inservice activities** were provided to K-12 teachers using the ICN as a delivery mechanism. These activities **reached nearly 3,000 teachers.**
- **916 teachers received released time to participate in project activities and 1,921 teachers received funding** for attendance at project activities.
- **Ten technical hotlines** were established in the state to assist teachers with technical difficulties encountered when using the ICN.
- Regional coordinators worked with teachers and students to evaluate instructional activities occurring over the ICN. **177 K-12 students completed surveys** about their interactive television experience. **Most were satisfied with the experience (83%)** and would take another course using interactive television (80%). Students particularly liked the opportunity to meet and interact with students in other parts of the state, the ability to take courses not available at their local school, and participation in a new learning experience. **Eight teachers also completed surveys and all agreed that interactive television instruction is an effective way to learn and that it was a positive experience.** Teachers particularly liked the opportunity to interact with students from other schools and the ability to try different teaching techniques.

## Goal 4

**Iowa schools will be CONNECTED to the Iowa Communications Network (ICN) and through it to other telecommunications networks.**

All activities under the four objectives for Goal 4 were completed.

- Points-of-presence **(POPs) were identified** in each of Iowa's 99 counties.
- **Regional activities** related to connection to the ICN **were coordinated** through the Regional Partnerships.
- **Site meetings were held** to determine locations for fiber optic terminal equipment and other equipment needed to meet the technical specifications of the project.
- Regional coordinators **assisted in determining on-site fiber routing** and in determining necessary **site remodeling.**
- Guidelines and **specifications** for distance education classrooms **were provided** to all POP schools by the Regional Coordinators.
- Site plans were prepared and **money was provided to equip classrooms** at all POPs.
- Statewide **minimum standards were determined for equipment** and specifications were provided to all schools.
- Mechanisms for **centralized purchasing of classroom equipment** were developed and used.
- An **inventory of equipment** is maintained by Project Management.
- **Internet training sessions** were held by the Clearinghouse for AEA personnel.
- **75 Internet training sessions were conducted by the AEAs with more than 1,000 teachers** participating.
- The Clearinghouse worked with the North Central Regional Education Laboratory (NCREL) to **establish an Iowa Database on the Internet.**
- The **Clearinghouse conducted a needs survey** to determine needs of local schools for programming and provided this information on the Iowa Database.
- Regional efforts resulted in **a needs analysis conducted by superintendents of POP schools** with results placed on the Iowa Database.
- **A statewide needs assessment was conducted using focus groups over the ICN** to determine instructional, staff development, and administrative needs that could be addressed by use of the ICN.
- The project provided **access to the Internet for K-12 schools** through a slip connection at Iowa State University.
- Teachers were provided with passwords and **funds were allocated to pay for access time to Internet.**

## Goal 5

**Improved instruction in mathematics, science, foreign language, literacy skills, and vocational education will be IMPROVED and the number of opportunities will be INCREASED because of the activities of this project and the use of the Iowa Communications Network.**

Three objectives and twelve activities were identified under this goal. All were accomplished during this project.

- **Course needs for local schools were identified** through both a survey of POP site superintendents and a statewide needs assessment using the ICN.
- **48 courses were offered** over the ICN **serving 868 K-12 students,** including courses in science, mathematics, foreign language, literacy, and vocational education. This compares with 16 courses serving 520 students that were offered via other interactive technologies at the beginning of this project (baseline data).
- **241 instructional events reached 6,272 K-12 students** through the ICN. This compares with 65 students served by interactive technologies prior to this project (baseline data). ICN activities

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sponsored by this project allowed students to talk to experts, conduct experiments, interview legislators, connect to pen pals, participate in storytelling for elementary children, and more.

- Project Management provided opportunities for participation in several **programs offered by other Star Schools projects.**
- **19 special programs reached 506 students from underserved groups,** including Chapter 1 students, minority students, females in mathematics and science, non-native speakers, and special education students.
- **Two student mentoring projects** were set up over the ICN.
- **Five after-school hotlines** were planned to serve K-12 students in the five curriculum areas.
- **22 additional inservice courses and 142 additional inservice activities** were provided to teachers over the ICN reaching nearly 3,000 teachers.
- **916 teachers received release time and 1,921 received funding** for participating in activities sponsored by the project.
- **Ten mentoring or peer sharing projects** were established with **464 teachers participating.**

## Goal 6
A program of RESEARCH and EVALUATION will be established to document the impact and effectiveness of the live, interactive, two-way interactive concept of distance education practiced in Iowa.

Two objectives and 11 activities were outlined under this goal. All activities were completed. Several of the activities will continue beyond the project period.

- **A Research and Evaluation Advisory Panel was established** with representatives from all project partners, as well as a classroom teacher, an evaluation expert, and a representative of the First in the Nation in Education (FINE) foundation.
- **Guidelines for data collection** were established, reporting forms were developed, **data were collected** from all project partners throughout the project, and **databases were established** using both a mainframe and micro computer. Software packages used include SPSS and Alpha Four.
- **Results** from data analyses were **provided to Project Management** and appropriate project partners throughout the project.
- A variety of **instruments were developed** by the evaluation team for data collection throughout the project.
- Both **qualitative and quantitative data were collected** throughout the project and included a teacher education technology survey; a telephone survey of teacher education institutions; evaluation of preservice activities; data collection from workshop and institute participants, including demographic information, evaluations of the activities, and pre- and post-assessments; regional demonstration surveys; surveys of students and teachers involved in ICN instructional activities at both the K-12 and community college levels; regional reporting forms; TEA reporting forms; surveys asking for views of the future from all project partners; follow-up surveys of workshop and curriculum institute participants; telephone interviews of AEA personnel; surveys of community college and AEA personnel; data collection from NCREL; an on-line survey in the Iowa Database; and a needs assessment using focus groups over the ICN.
- Qualitative data collected indicate that **teachers, students and citizens are more aware, K-12 schools are beginning to take initiatives in planning distance education activities, teacher inservice and networking is occurring, and collaboration between educational groups has increased as a result of this project.** In addition, **innovative instructional activities are** occurring over the ICN as a direct result of this project including such things as summer school for low-income K-6 students, student discussions with experts from such areas as human gene research and astronomy, storytelling for elementary students, alternative high school classes on parenting and drug and alcohol abuse, teen meetings on crime, and high school vocational education students learning about laser/electro optics technology.

- A **research plan was developed**, RFPs were distributed, and **16 research projects** examining distance education in Iowa were **funded**. An encyclopedia of this research was published.
- Several **articles have been published** related to research and evaluation activities of the project including articles in <u>Tech Trends</u> and the <u>IRM Quarterly</u>.
- Numerous **presentations have been made** to professional groups, including the Iowa Educational Research and Evaluation Association and the American Educational Research Association, about the project's research and evaluation activities.
- Research and evaluation **information** has been provided to Project Management for inclusion **on the Iowa Database**. The monograph on distance education prepared by the research team can be accessed on the Iowa Database.
- During each year of the project, three **external evaluators reviewed the project** by examining internal evaluation data, meeting with project partners, touring facilities, and observing ICN activities. **Conclusions were positive.**

# CONCLUSION

The Iowa Distance Education Alliance (IDEA) is a partnership involving educational institutions across Iowa that received funding from the federal Star Schools Program to demonstrate the use of the Iowa Communication Network's (ICN) fiber optic technology for K-12 instruction. Iowa Public Television (IPTV), the Iowa Department of Education, the state's three public universities, fifteen community colleges, fifteen area education agencies (AEAs), and many local school districts participated in the project over a two-year period. The project focused on accomplishing six major goals: (1) coordinating use of the ICN, (2) informing Iowans about the ICN, (3) preparing teachers to use the ICN, (4) connecting schools to the ICN, (5) improving instruction in five content areas through use of the ICN, and (6) documenting the effectiveness of the ICN. During the first year of the project, activities focused on teacher training and public relations efforts as the state prepared for the fiber optic network to become operational. The fiber optic network was "lit" during the second year of the project and the project's emphasis then shifted to using the network to deliver programming for K-12 students and teachers, although training and public relations efforts continued.

Iowa's Star Schools demonstration project has been extremely successful. **All of the objectives and activities outlined in the IDEA proposal were accomplished** during the two years of the project, and the momentum begun with the project is continuing. Cooperation and collaboration among educational organizations in Iowa improved. **Innovative instructional activities are occurring over the ICN.** Students and teachers who used the system view it positively, as do other Iowans who have seen the system in operation. Some of the highlights of the project include:

<u>Public Perceptions</u>
- Over **75,000 Iowans have heard presentations** and received information about the ICN.
- Approximately **15,000 Iowans have seen the fiber-optic classrooms** in demonstrations.
- Among Iowans who have seen the system in operation, over three-fourths **(76%) believe interactive distance education will benefit K-12 education** in Iowa.
- **81% of Iowans believe the ICN is important in providing students with access to resources** such as computer databases and experts.
- **79%** believe use of the ICN will improve Iowa students' abilities to succeed in a technological world.
- **65% believe all teachers should receive training** on how to teach at a distance.

<u>K-12 Student Perceptions</u>
- **7,140 K-12 students participated in instructional courses** and events over the ICN.
- Over **800 elementary students participated in a storyteller series** over the ICN.
- Among K-12 students who have taken an ICN course, **83% were satisfied**.

- 80% of students who have taken an ICN course would take another one and 75% would tell their friends to take one.

## K-12 Teacher Training
- 2,866 K-12 teachers participated in inservice courses and activities offered over the ICN.
- 555 K-12 teachers participated in institutes on curriculum reform in mathematics, science, literacy, foreign language, and vocational education sponsored by the IDEA and rated these institutes positively.
- Approximately 900 Iowa educators participated in hands-on workshops to learn how to use the ICN and nearly 90% rated the workshops as excellent.

## K-12 Teacher Perceptions
- K-12 teachers want their schools to be connected to the ICN; 96% of teachers participating in IDEA activities reported that having an ICN classroom in their building is important.
- Among teachers participating in IDEA training, 21% have now used the ICN for instructional purposes.
- 100% of K-12 teachers surveyed who have used the system felt distance education is an effective way to learn.
- 100% of K-12 teachers who used the ICN found the equipment easy to manage while teaching.
- Most teachers (75%) found that remote site students learned as much as students in the classroom with the teacher.
- 88% would encourage their colleagues to teach over the ICN.

## K-12 Internet Use
- 1,126 K-12 teachers received training in how to use the Internet.
- The IOWA Database, an electronic clearinghouse on the Internet developed as part of the Iowa Star Schools project, is being used by Iowa educators.

## Teacher Education
- 82% of the private colleges in Iowa believe distance education is important to include in preservice teacher education.
- Most of the private colleges (82%) were connected or plan to connect to the ICN.

As with any innovation, acceptance of the system as an integral part of K-12 education will take time. Implementation of the IDEA project occurred at a slower pace than originally anticipated, and although much effort was expended in the area of public relations, efforts to keep Iowans informed and to help educators realize the potential of the ICN remain an area for emphasis. Use of the ICN will continue to evolve, and as evidenced by the IDEA evaluation findings, continued success may hinge on future developments in several key areas.

## Access to the system
The Iowa Star Schools demonstration project has been so successful that levels of demand for ICN time have increased rapidly, often exceeding capacity. Demands for access to the system, both in terms of physical connections (sites) as well as availability and access to current ICN classrooms has surpassed all expectations. The level of demand has created scheduling difficulties not previously anticipated.
- Action by state government is needed to continue to expand the network. IPTV and the regional schedulers at community colleges will need to continue to provide leadership for the evolving scheduling process.

## Policy Issues
Critical concerns for K-12 teachers include additional planning and released time for distance education instructional activities and additional compensation for teaching courses over the ICN.

- District and/or regional and/or state policies need to be determined for teaching over the ICN. The IDEA partners have recommended that the Iowa Department of Education take a leadership role in initiating discussion of these issues.

## Operational Issues
K-12 operational issues include coordination of common calendars and class schedules across school districts, the role of the facilitator in the remote classroom, and local costs for maintaining ICN facilities.
- Districts and/or regional and/or state policies and procedures need to be determined to enhance operation of the ICN. Appropriate educational groups to be involved in the discussion of these issues include the Iowa Department of Education, community colleges, AEAs, and local school districts.

## Teacher Inservice
Teacher inservice was an integral component of the IDEA project and contributed significantly to its success. The workshops to train teachers to use ICN equipment were extremely effective. The institutes held to inform teachers about current reform efforts in key curricular areas were received favorably. Institute participation increased during the second year of the project and participants appreciated the convenience of inservice training provided over the ICN. Significant interest in the Internet training was also evident.
- Hands-on training for teachers in the use of the ICN and the Internet should be continued in a systematic and coordinated fashion, and equitable and inexpensive Internet access for all K-12 schools should remain a goal. The ICN should also continue to be used as a vehicle for providing teachers with opportunities to upgrade their knowledge and skills in content areas. The IDEA partners recommend that the universities and AEAs take a leadership role in the area of inservice.

## Preservice Teacher Education
Information was provided and efforts were made to integrate distance education into the preservice teacher education programs across the state beyond the awareness level. There is a need for increased faculty involvement and training and increased access to ICN facilities.
- Opportunities for learning about distance education should continue to be provided for teacher education faculty and administrators. The Iowa Association of Colleges of Teacher Education (IACTE) appears to be a viable forum for initiating discussion of the role of distance education in teacher education.

## Information Access and Coordination
Educators across the state are more aware of the ICN and the capabilities of distance education, but many perceive a need for more information, perhaps centralized, about the system and about activities that are available on the system.
- Information access and coordination should build upon current efforts by the Communication and Resources Clearinghouse, community colleges, AEAs, and other IDEA partners and alternative methods of providing information should be explored. IDEA partners recommend that the Clearinghouse take a leadership role in providing information to educators and students.

## Collaboration
Collaboration and coordination among educational organizations contributed to the success of the IDEA project. Continued collaboration and cooperation will be necessary if the system is to be used to its fullest potential. There is general agreement among the project partners that the IDEA should continue and general agreement as to the roles of the partner groups.
- The IDEA partners recommend that IPTV take the responsibility for continuing the partnership and for initiating further discussions of the roles and responsibilities of the participating educational organizations.